Richard A. Roline, S. Mark Nelson;
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FY 1999 - FY 2001

Wetlands and riparian areas serve as a critical link in watersheds and aquatic ecosystems by the maintenance of water quality, water quantity, and fish and wildlife habitat. Approximately 50 percent of the historical wetlands in the U.S. has been lost, and over 90 percent has been lost in some areas of the West. Construction of wetlands and the restoration of wetland and riparian areas offer an effective solution in curbing the loss of wetland areas and in restoring habitat and water treatment capability within watersheds. A prerequisite for constructed wetland design and for ecologically sound wetland conservation, rehabilitation, restoration, or enhancement is an understanding of the values and functions of wetlands and riparian areas. Evaluation of the physical, chemical, and biological attributes of wetland systems within a wide range of climatic conditions and geographical areas is necessary.

The goals of this project were to develop constructed and/or restored wetlands within a wide geographic area of the West and to begin to gather sound information on water quality and wetland functions, values, and uses for incorporation into the management of watersheds, water projects, and aquatic ecosystems.

Several wetland sites throughout the West involving Federal, state, local, and private partners have been designed and constructed. These wetlands are both free surface water and subsurface water systems. Monitoring of some of the developed wetlands is currently taking place with additional monitoring of the remaining wetlands scheduled once they are completed and fully developed.

Numerous Reclamation regional and area offices; USGS-BRD, MESC; City of Las Vegas, Nevada; City of Boulder City, Nevada; Clark County, Nevada; University of Nevada - Las Vegas; Montgomery-Watson Engineering; Wright Water Engineers; Rocky Mountain Shambhala Center, Colorado; Imperial Irrigation District, California; University of Texas; and Spanish CEDEX.

Bureau of Reclamation. Proceedings of Wetlands Workshop, Lower Colorado Regional Office, Boulder City, Nevada. Held in Henderson, Nevada, November 3-4, 1998.

Hosted and participated in the workshop and meeting of the research team studying the impacts of channel modifications on the water quality and biota of the Rincon Bayou/Nueces Bay, Corpus Christi, Texas. Held in Denver, Colorado, February 1999.

Nelson, S. Mark, Richard A. Roline, Joan S. Thullen, James J. Sartoris, and John E. Boutwell. Invertebrate Assemblages and Trace Metal Bioaccumulation Associated with Wetland Treatment Cells (draft report). Paper presented at the North American Benthological Society Annual Meeting, Duluth, MN, June 1999.

Participated in the American Water Works Association Research Foundation (AWWARF) Issue Group on Source Water (Watershed) Protection. Held in Denver, Colorado, July 1999.

Participated in the Governor's Colorado Office of Energy Management and Conservation's Constructed Wetlands Task Force. Held in Denver, Colorado, September 1999.

Installed aeration system in the Rocky Mountain Shambhala Center subsurface wastewater treatment wetland for improving wastewater treatment efficiency. September 1999.